SEQUENCE LISTING

(1) GENERAL INFORMATION:

   (i) APPLICANT: REFF, Mitchell E.
                 KLOETZER, William S.
                 NAKAMURA, Takehiko

  (ii) TITLE OF INVENTION: GAMMA-1 ANTI-HUMAN CD23 MONOCLONAL
          ANTIBODIES AND USE THEREOF AS THERAPEUTICS

 (iii) NUMBER OF SEQUENCES: 35

  (iv) CORRESPONDENCE ADDRESS:
      (A) ADDRESSEE: BURNS, DOANE, SWECKER & MATHIS, LLP
      (B) STREET: P.O. Box 1404
      (C) CITY: Alexandria
      (D) STATE: Virginia
      (E) COUNTRY: United States
      (F) ZIP: 22313-1404

   (v) COMPUTER READABLE FORM:
      (A) MEDIUM TYPE: Floppy disk
      (B) COMPUTER: IBM PC compatible
      (C) OPERATING SYSTEM: PC-DOS/MS-DOS
      (D) SOFTWARE: PatentIn Release #1.0, Version #1.30

  (vi) CURRENT APPLICATION DATA:
      (A) APPLICATION NUMBER: US 09/019,441
      (B) FILING DATE: 05-FEB-1998
      (C) CLASSIFICATION:

 (vii) PRIOR APPLICATION DATA:
      (A) APPLICATION NUMBER: US 08/803,085
      (B) FILING DATE: 20-FEB-1997

(viii) ATTORNEY/AGENT INFORMATION:
      (A) NAME: Teskin, Robin L.
      (B) REGISTRATION NUMBER: 35,030
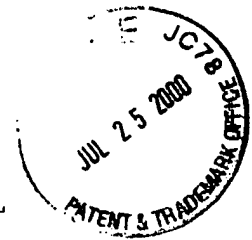   (C) REFERENCE/DOCKET NUMBER: 012712-502

  (ix) TELECOMMUNICATION INFORMATION:
      (A) TELEPHONE: (703) 836-6620
      (B) TELEFAX: (703) 836-2021

(2) INFORMATION FOR SEQ ID NO:1:

   (i) SEQUENCE CHARACTERISTICS:
      (A) LENGTH: 390 base pairs

```
      (B)  TYPE: nucleic acid
      (C)  STRANDEDNESS: single
      (D)  TOPOLOGY: linear

  (ii) MOLECULE TYPE: DNA (genomic)

  (ix) FEATURE:
      (A)  NAME/KEY: CDS
      (B)  LOCATION: 1..390

  (ix) FEATURE:
      (A)  NAME/KEY: mat_peptide
      (B)  LOCATION: 58..390


  (xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:
```

```
ATG GCC TGG ACT CTG CTC CTC GTC ACC CTC CTC ACT CAG GGC ACA GGA        48
Met Ala Trp Thr Leu Leu Leu Val Thr Leu Leu Thr Gln Gly Thr Gly
-19             -15             -10                     -5

TCC TGG GCT CAG TCT GCC CCG ACT CAG CCT CCC TCT GTG TCT GGG TCT        96
Ser Trp Ala Gln Ser Ala Pro Thr Gln Pro Pro Ser Val Ser Gly Ser
        -1   1               5                       10

CCT GGA CAG TCG GTC ACC ATC TCC TGC ACT GGA ACC AGC GAT GAC GTT       144
Pro Gly Gln Ser Val Thr Ile Ser Cys Thr Gly Thr Ser Asp Asp Val
    15                  20                  25

GGT GGT TAT AAC TAT GTC TCC TGG TAC CAA CAC CAC CCA GGC AAA GCC       192
Gly Gly Tyr Asn Tyr Val Ser Trp Tyr Gln His His Pro Gly Lys Ala
 30                  35                  40                  45

CCC AAA CTC ATG ATT TAT GAT GTC GCT AAG CGG GCC TCA GGG GTC TCT       240
Pro Lys Leu Met Ile Tyr Asp Val Ala Lys Arg Ala Ser Gly Val Ser
                50                  55                  60

GAT CGC TTC TCT GGC TCC AAG TCT GGC AAC ACG GCC TCC CTG ACC ATC       288
Asp Arg Phe Ser Gly Ser Lys Ser Gly Asn Thr Ala Ser Leu Thr Ile
            65                  70                  75

TCT GGG CTC CAG GCT GAG GAC GAG GCT GAT TAT TAC TGT TGT TCA TAT       336
Ser Gly Leu Gln Ala Glu Asp Glu Ala Asp Tyr Tyr Cys Cys Ser Tyr
        80                  85                  90

ACA ACC AGT AGC ACT TTG TTA TTC GGA AGA GGG ACC CGG TTG ACC GTC       384
Thr Thr Ser Ser Thr Leu Leu Phe Gly Arg Gly Thr Arg Leu Thr Val
        95                  100                 105

CTA GGT                                                               390
Leu Gly
```

110

(2) INFORMATION FOR SEQ ID NO:2:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 423 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: CDS
        (B) LOCATION: 1..423

    (ix) FEATURE:
        (A) NAME/KEY: mat_peptide
        (B) LOCATION: 58..423

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

```
ATG AAA CAC CTG TGG TTC TTC CTC CTC CTG GTG GCA GCT CCC AGA TGG        48
Met Lys His Leu Trp Phe Phe Leu Leu Leu Val Ala Ala Pro Arg Trp
-19          -15              -10                  -5

GTC CTG TCC CAG CTG CAG CTG CAG GAG TCG GGC CCA GGA GTG GTG AAG        96
Val Leu Ser Gln Leu Gln Leu Gln Glu Ser Gly Pro Gly Val Val Lys
        -1   1                 5                  10

CCT TCG GAG ACC CTG TCC CTC ACC TGC GCT GTC TCT GGT GGC TCT GTC       144
Pro Ser Glu Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Val
      15                20                25

AGC AGT AGT AAC TGG TGG ACC TGG ATC CGC CAG CCC CCA GGG AAG GGA       192
Ser Ser Ser Asn Trp Trp Thr Trp Ile Arg Gln Pro Pro Gly Lys Gly
 30                  35                40                  45

CTG GAG TGG ATT GGA CGT ATC TCT GGT AGT GGT GGG GCC ACC AAC TAC       240
Leu Glu Trp Ile Gly Arg Ile Ser Gly Ser Gly Gly Ala Thr Asn Tyr
                  50                55                60

AAC CCG TCC CTC AAG AGT CGA GTC ATC ATT TCA CAA GAC ACG TCC AAG       288
Asn Pro Ser Leu Lys Ser Arg Val Ile Ile Ser Gln Asp Thr Ser Lys
             65                70                75

AAC CAG TTC TCC CTG AAC CTG AAC TCT GTG ACC GCC GCG GAC ACG GCC       336
Asn Gln Phe Ser Leu Asn Leu Asn Ser Val Thr Ala Ala Asp Thr Ala
```

```
          80                      85                      90

GTG TAT TAC TGT GCC AGA GAT TGG GCC CAA ATA GCT GGA ACA ACG CTA        384
Val Tyr Tyr Cys Ala Arg Asp Trp Ala Gln Ile Ala Gly Thr Thr Leu
     95                  100                 105

GGC TTC TGG GGC CAG GGA GTC CTG GTC ACC GTC TCC TCA                    423
Gly Phe Trp Gly Gln Gly Val Leu Val Thr Val Ser Ser
110                 115                 120
```

(2) INFORMATION FOR SEQ ID NO:3:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 387 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: CDS
        (B) LOCATION: 1..387

    (ix) FEATURE:
        (A) NAME/KEY: mat_peptide
        (B) LOCATION: 67..387

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

```
ATG GAC ATG AGG GTC CCC GCT CAG CTC CTG GGG CTC CTT CTG CTC TGG         48
Met Asp Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu Trp
-22      -20                 -15                 -10

CTC CCA GGT GCC AGA TGT GAC ATC CAG ATG ACC CAG TCT CCA TCT TCC         96
Leu Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
     -5              -1  1               5                  10

CTG TCT GCA TCT GTA GGG GAC AGA GTC ACC ATC ACT TGC AGG GCA AGT        144
Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser
                15              20                  25

CAG GAC ATT AGG TAT TAT TTA AAT TGG TAT CAG CAG AAA CCA GGA AAA        192
Gln Asp Ile Arg Tyr Tyr Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys
            30              35                  40

GCT CCT AAG CTC CTG ATC TAT GTT GCA TCC AGT TTG CAA AGT GGG GTC        240
Ala Pro Lys Leu Leu Ile Tyr Val Ala Ser Ser Leu Gln Ser Gly Val
```

```
            45                      50                       55

CCA TCA AGG TTC AGC GGC AGT GGA TCT GGG ACA GAG TTC ACT CTC ACC        288
Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr
     60                  65                   70

GTC AGC AGC CTG CAG CCT GAA GAT TTT GCG ACT TAT TAC TGT CTA CAG        336
Val Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln
 75                  80                   85                   90

GTT TAT AGT ACC CCT CGG ACG TTC GGC CAA GGG ACC AAG GTG GAA ATC        384
Val Tyr Ser Thr Pro Arg Thr Phe Gly Gln Gly Thr Lys Val Glu Ile
                 95                  100                  105

AAA                                                                    387
Lys
```

(2) INFORMATION FOR SEQ ID NO:4:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 411 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: CDS
        (B) LOCATION: 1..411

    (ix) FEATURE:
        (A) NAME/KEY: mat_peptide
        (B) LOCATION: 58..411

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

```
ATG GAG TTT GGG CTG AGC TGG GTT TTC CTT GTT CCT CTT TTG AAA GGT         48
Met Glu Phe Gly Leu Ser Trp Val Phe Leu Val Pro Leu Leu Lys Gly
-19             -15                  -10                  -5

GTC CAG TGT GAG GTG CAG CTG GTG GAG TCT GGG GGC GGC TTG GCA AAG         96
Val Gln Cys Glu Val Gln Leu Val Glu Ser Gly Gly Gly Leu Ala Lys
         -1   1                   5                    10

CCT GGG GGG TCC CTG AGA CTC TGG TGC GCA GCC TCC GGG TTC AGG TTC        144
Pro Gly Gly Ser Leu Arg Leu Trp Cys Ala Ala Ser Gly Phe Arg Phe
```

```
            15                      20                      25

ACC TTC AAT AAC TAC TAC ATG GAC TGG GTC CGC CAG GCT CCA GGG CAG        192
Thr Phe Asn Asn Tyr Tyr Met Asp Trp Val Arg Gln Ala Pro Gly Gln
 30                      35                      40                      45

GGG CTG GAG TGG GTC TCA CGT ATT AGT AGT AGT GGT GAT CCC ACA TGG        240
Gly Leu Glu Trp Val Ser Arg Ile Ser Ser Ser Gly Asp Pro Thr Trp
                50                      55                      60

TAC GCA GAC TCC GTG AAG GGC AGA TTC ACC ATC TCC AGA GAG AAC GCC        288
Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Glu Asn Ala
                65                      70                      75

AAC AAC ACA CTG TTT CTT CAA ATG AAC AGC CTG AGA GCT GAG GAC ACG        336
Asn Asn Thr Leu Phe Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr
                80                      85                      90

GCT GTC TAT TAC TGT GCG AGC TTG ACT ACA GGG TCT GAC TCC TGG GGC        384
Ala Val Tyr Tyr Cys Ala Ser Leu Thr Thr Gly Ser Asp Ser Trp Gly
         95                     100                     105

CAG GGA GTC CTG GTC ACC GTC TCC TCA                                    411
Gln Gly Val Leu Val Thr Val Ser Ser
110                     115
```

(2) INFORMATION FOR SEQ ID NO:5:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 41 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

ATCACAGATC TCTCACCATG GACATGAGGG TCCCCGCTCA G   41

(2) INFORMATION FOR SEQ ID NO:6:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 35 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

ATCACAGATC TCTCACCATG AGGCTCCCTG CTCAG   35

(2) INFORMATION FOR SEQ ID NO:7:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 35 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 24
        (D) OTHER INFORMATION: /note= "Nucleotide 24 is N wherein
N = A/G."

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 32
        (D) OTHER INFORMATION: /note= "Nucleotide 32 is N wherein
N = T/G."

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

ATCACAGATC TCTCACCATG GAANCCCCAG CNCAG   35

(2) INFORMATION FOR SEQ ID NO:8:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 38 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

ATCACAGATC TCTCACCATG GTGTTGCAGA CCCAGGTC   38

(2) INFORMATION FOR SEQ ID NO:9:

    (i) SEQUENCE CHARACTERISTICS:

        (A) LENGTH: 29 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 24
        (D) OTHER INFORMATION: /note= "Nucleotide 24 is N wherein
  N = C/T."

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 29
        (D) OTHER INFORMATION: /note= "Nucleotide 29 is N wherein
  N = G/C."

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

GGTGCAGCCA CCGTAGCTTT GATNTCCAN   29

(2) INFORMATION FOR SEQ ID NO:10:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 34 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 21
        (D) OTHER INFORMATION: /note= "Nucleotide 21 is N wherein
  N = G/A."

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 26
        (D) OTHER INFORMATION: /note= "Nucleotide 26 is N wherein
  N = G/C."

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

ATCACAGATC TCTCACCATG NCCTGNTCCC CTCT   34

(2) INFORMATION FOR SEQ ID NO:11:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 34 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 27
        (D) OTHER INFORMATION: /note= "Nucleotide 27 is N wherein
N = A/G."

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 31
        (D) OTHER INFORMATION: /note= "Nucleotide 31 is N wherein
N = T/C."

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

ATCACAGATC TCTCACCATG GCCTGGNCTC NGCT   34

(2) INFORMATION FOR SEQ ID NO:12:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 35 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 23
        (D) OTHER INFORMATION: /note= "Nucleotide 23 is N wherein
N = A/C."

    (ix) FEATURE:
        (A) NAME/KEY: misc_feature
        (B) LOCATION: 29
        (D) OTHER INFORMATION: /note= "Nucleotide 29 is N wherein
N = T/C."

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

ATCACAGATC TCTCACCATG GCNTGGANCC CTCTC   35

(2) INFORMATION FOR SEQ ID NO:13:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 21 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

CTTGGGCTGA CCTAGGACGG T   21

(2) INFORMATION FOR SEQ ID NO:14:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 30 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

GCGACTAAGT CGACCATGGA CTGGACCTGG   30

(2) INFORMATION FOR SEQ ID NO:15:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 30 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

GCGACTAAGT CGACCATGAA ACACCTGTGG   30

(2) INFORMATION FOR SEQ ID NO:16:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 33 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

GCGACTAAGT CGACCATGGA GTTTGGGCTG AGC   33

(2) INFORMATION FOR SEQ ID NO:17:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 33 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

GCGACTAAGT CGACCATGGG GTCAACCGCC ATC   33

(2) INFORMATION FOR SEQ ID NO:18:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 33 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

GCGACTAAGT CGACCATGTC TGTCTCCTTC CTC   33

(2) INFORMATION FOR SEQ ID NO:19:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 46 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single

          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

GCCAGGGGGA AGACCGATGG GCCCTTGGTG CTAGCTGAGG AGACGG   46

(2) INFORMATION FOR SEQ ID NO:20:

     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 31 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

GATGGGCCCT TGGTGCTAGC TGAGGAGACG G   31

(2) INFORMATION FOR SEQ ID NO:21:

     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 51 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

GGTGCTAGCT GAGGAGACGG TGACCAGGAC TCCCTGGCCC CAGAAGCCTA G   51

(2) INFORMATION FOR SEQ ID NO:22:

     (i) SEQUENCE CHARACTERISTICS:
          (A) LENGTH: 17 base pairs
          (B) TYPE: nucleic acid
          (C) STRANDEDNESS: single
          (D) TOPOLOGY: linear

     (ii) MOLECULE TYPE: DNA (genomic)

     (xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

ATTTAGGTGA CACTATA   17

(2) INFORMATION FOR SEQ ID NO:23:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 16 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

GTTTTCCCAG TCACGA   16

(2) INFORMATION FOR SEQ ID NO:24:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 20 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

ATATACGACT CACTATAGGG   20

(2) INFORMATION FOR SEQ ID NO:25:

    (i) SEQUENCE CHARACTERISTICS:
       (A) LENGTH: 24 base pairs
       (B) TYPE: nucleic acid
       (C) STRANDEDNESS: single
       (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

CCGTCAGATC GCCTGGAGAC GCCA   24

(2) INFORMATION FOR SEQ ID NO:26:

    (i) SEQUENCE CHARACTERISTICS:

```
                (A) LENGTH: 20 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

GCAGTTCCAG ATTTCAACTG                                               20


    (2) INFORMATION FOR SEQ ID NO:27:

         (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 21 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

CCAGGCCACT GTCACGGCTT C                                             21


    (2) INFORMATION FOR SEQ ID NO:28:

         (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 20 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)

         (xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

CAGAGCTGGG TACGTCCTCA                                               20


    (2) INFORMATION FOR SEQ ID NO:29:

         (i) SEQUENCE CHARACTERISTICS:
                (A) LENGTH: 20 base pairs
                (B) TYPE: nucleic acid
                (C) STRANDEDNESS: single
                (D) TOPOLOGY: linear

         (ii) MOLECULE TYPE: DNA (genomic)
```

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

GCCCCCAGAG GTGCTCTTGG   20

(2) INFORMATION FOR SEQ ID NO:30:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 20 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

ACACAGACCC GTCGACATGG   20

(2) INFORMATION FOR SEQ ID NO:31:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 20 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

GCTCTCGGAG GTGCTCCTGG   20

(2) INFORMATION FOR SEQ ID NO:32:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 30 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

ACAGACCCGT CGACCATGGA GTTTGGGCTG   30

(2) INFORMATION FOR SEQ ID NO:33:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 27 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

CCCCTTGGTG CTAGCTGAGG AGACGGT   27

(2) INFORMATION FOR SEQ ID NO:34:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 27 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

AGAGAGAACG CCAAGAACAC ACTGTTT   27

(2) INFORMATION FOR SEQ ID NO:35:

    (i) SEQUENCE CHARACTERISTICS:
        (A) LENGTH: 27 base pairs
        (B) TYPE: nucleic acid
        (C) STRANDEDNESS: single
        (D) TOPOLOGY: linear

    (ii) MOLECULE TYPE: DNA (genomic)

    (xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

AAACAGTGTG TTCTTGGCGT TCTCTCT   27